COURSE OVERVIEW EE1120-3D
Basic Electrical Workshop Equipment

Course Title
Basic Electrical Workshop Equipment

Course Date/Venue
November 16-18, 2025/Executive Boardroom B Meeting Room, InterContinental Abu Dhabi, Abu Dhabi, UAE

Course Reference
EE1120-3D

Course Duration/Credits
Three days/1.8 CEUs/18 PDHs

Course Description

This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.

This course is designed to provide participants with a detailed and up-to-date overview of Basic Electrical Workshop Equipment. It covers the workshop safety, electrical hazards and basic electrical theory; the hand tools used in electrical work covering pliers, screwdrivers and nut drivers, wire strippers and crimpers and safety and care of hand tools; the measurement and testing instruments, wire and cable and workplace electrical regulations and standards; the bench work and assembly tools, soldering and desoldering tools including conduit bending and termination tools; and the cable stripping and preparation, lug crimping and ferrule insertion, heat shrink application and cable glands and cable testing after termination.

During this interactive course, participants will learn the use of drilling, cutting and grinding tools, mounting MCBs, sockets and switches and interconnecting wiring and troubleshooting; assembling domestic and industrial electrical circuits; the proper testing and fault-finding techniques, inspection checklists and tool tagging; cleaning and lubrication, functional verification and storage and battery-operated tools maintenance; the purpose and regulatory background of portable appliance testing (PAT); the visual inspection of appliances, earth continuity and insulation resistance tests, labelling and recording results; the electric screwdrivers, power drills, heat guns and hot air blowers; and the cable cutters, hydraulic crimpers and safety and operational guidelines.

Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain a basic knowledge on electrical workshop equipment
- Discuss workshop safety, electrical hazards and basic electrical theory
- Identify hand tools used in electrical work covering pliers, screwdrivers and nut drivers, wire strippers and crimpers and safety and care of hand tools
- Recognize measurement and testing instruments, wire and cable and workplace electrical regulations and standards
- Describe bench work and assembly tools, soldering and desoldering tools including conduit bending and termination tools
- Apply cable stripping and preparation, lug crimping and ferrule insertion, heat shrink application and cable glands and cable testing after termination
- Use drilling, cutting and grinding tools, mount MCBs, sockets and switches and interconnect wiring and troubleshooting
- Assemble domestic and industrial electrical circuits and apply proper testing and fault-finding techniques
- Employ inspection checklists and tool tagging, cleaning and lubrication, functional verification and storage and battery-operated tools maintenance
- Discuss the purpose and regulatory background of portable appliance testing (PAT) and apply visual inspection of appliances, earth continuity and insulation resistance tests, labelling and recording results
- Recognize electric screwdrivers, power drills, heat guns and hot air blowers, cable cutters, hydraulic crimpers and safety and operational guidelines

Exclusive Smart Training Kit - H-STK®

*Participants of this course will receive the exclusive "Haward Smart Training Kit" (**H-STK®**). The **H-STK®** consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides an overview of all significant aspects and considerations of basic electrical workshop equipment for technicians and electricians, engineering students and fresh graduates, maintenance personnel, apprentices and trainees, supervisors and other technical staff.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Course Fee

US$ 3,750 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours

Certificate Accreditations

Haward's certificates are accredited by the following international accreditation organizations: -

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

- The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **1.8 CEUs** (Continuing Education Units) or **18 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:

Mr. Ken Steel is a **Senior Electrical & Instrumentation Engineer** with over **30 years** of extensive experience. His expertise widely covers **Process Control Instrumentation**, **Process Instrumentation & Control**, **Process Control**, **Instrumentation**, , **Instrumentation** for Process Optimization and Control, Process Automation and **Instrumentation** Systems Integration, Troubleshooting in **Process Control Systems, Process Control** & Safeguarding, Troubleshooting & **Problem Solving**, **Process Instrumentation** and Control Techniques, Troubleshooting **Instrumentation** and Control Systems, GC Processes Troubleshooting and Control Systems, Programmable Logic Controllers (**PLC**), **SCADA System**, **PLC & SCADA** - Automation & Process Control, **PLC & SCADA** Systems Application, Technical **DCS/SCADA,** Distributed Control System (**DCS**) Principles, Applications, Selection & Troubleshooting**, Electrical Motors Testing**, **Heat Tracing** & Insulation Installation & Testing, **HV Terminations**, **High & Low Voltages** on Overhead Cranes, **HV/MV Cable Splicing**, **Cable & Over Head Power Line**, **HV/MV Switchgear, HV Cable** Design, **Medium & High Voltage** Equipment, **High Voltage Circuit Breaker** Inspection & Repair, **High Voltage Power** System, **HV Equipment** Inspection & Maintenance, **HV Switchgear** Operation & Maintenance, Resin / **Heat Shrink & Cold Shrink** Joints, **HV/LV Equipment**, **LV & HV** Electrical System, **Cable** Splicing & Termination, **High Voltage** Electrical Safety, **LV**, **MV & HV Cable** Installations & Properties, **LV Substation**, **MV & LV Cable**, **UPS Systems**, **MV & LV** Direct on Line Motor Drives, **MV & LV** VSD Motor Drives, **MV & LV** Soft Starter Motor Drives, **LV Two Speed Motor Drives**, Underground **Transformer Oil Containment Tank**, **Electrical & Instrumentation Construction** Installation, 1500KW, 1000KW, 1752KW **Diesel Power Plant Installation**, **110KV Overhead Line**, **110KV Outdoor Switchgear**, 110KV/10KV 6500KVA **Transformer**, **Transformer Substation**, 1600KVA 10KV/0.4KV & 2 Off 1000KVA **Diesel Generators**, 1600KVA 10KV/0.4KV & 1650KVA **Diesel Generator**, **110KV/35KV/10KV Substation**, 110KV/10KV **Transformers**,110KV & 2 Off 6KV **Overhead Lines**, 34.5KV,13.8KV ,4.16KV & 480V **Switchgear**, 4.16KV & 480V MCC, **Transformers & Motor Drives** Substations, **Diesel Driven Generators**, **Overhead Cranes**, **Overhead Cranes & HVAC Units**, **AC & DC Drives**, **Data Logger**, **Electrical, Instrumentation & Mechanical** Installation Maintenance, Slab Mills, Pre Heat Ovens, Hydraulic Shears, Stamping Machine, Gearboxes, Rollers, Pumps, Valves, Electro Magnets & Pump House Operation, Boilers Construction And Commissioning, Valve Calibration & Testing, Level Gauges, Pressure & Flow Transmitters Installation & Calibration, Pressure & Leak Testing of Boilers, Leak Testing, SMP, Elect, I&C, F&G, HVAC & Utility Services, Nitrogen Leak Test Operations, Steam Blowing Activities, SMP, Elect, I&C, F&G, HVAC & Utility Services, PTW Issue (PA/AC), Installation & Mechanical Piping and Hydro Testing & Leak Testing of Lines Installation.

During Mr. Steel's career life, he has gained his practical experience through several significant positions and dedication as the **3GP PBF & Boilers SC Commission Support**, **SC Site Execution Superintendent**, **E&I Construction Superintendent**, **High Voltage Construction Supervisor**, **Control & Power Construction Supervisor**, **Electrical & Instrumentation Supervisor**, **Electrical Technician**, **Construction Support Electrical Engineer**, **E&I Engineer**, **Electrical/Instrumentation Site Supervisor**, **Q.A/Q.C Inspector**, **Electrical/ Instrumentation Technician**, **Maintenance Fitter Instrumentation Technician**, **Millwright**, **Apprentice Millwright** and **Senior Instructor/Lecturer** for Tengiz Chevron Oil Kazakhstan, Al Jubail Saudi Arabia, Escravos Delta state Nigeria, Lurgi S.A, SuD Chemie Sasol Catalysts, J C Groenewalds Construction (LTA), Tycon (Goodyear S.A.), Dragline Construction and Iscor Vanderbijlpark.

Mr. Steel has a **Diploma** in **Electronics Mechanic**. Further, he is a **Certified Instructor/Trainer** and delivered numerous trainings, courses, workshops, seminars and conferences internationally.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures
20% Practical Workshops & Work Presentations
30% Hands-on Practical Exercises & Case Studies
20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the workshop for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1: ***Sunday, 16th of November 2025***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Workshop Safety & Electrical Hazards*** *Personal Protective Equipment (PPE) for Electrical Work • Common Electrical Hazards and Risk Control • Lockout/Tagout (LOTO) Procedures • Fire Safety and First Aid in Workshops*
0930 – 0945	*Break*
0945 – 1030	***Basic Electrical Theory Refresher*** *Voltage, Current, Resistance and Power • Ohm's Law and Basic Circuit Concepts • Series and Parallel Circuits • Use of Schematic Diagrams*
1030 – 1130	***Hand Tools Used in Electrical Work*** *Types of Pliers (Combination, Needle-Nose, Diagonal) • Screwdrivers and Nut Drivers • Wire Strippers and Crimpers • Safety and Care of Hand Tools*
1130 – 1215	***Measurement & Testing Instruments*** *Multimeters (Digital and Analog) • Clamp Meters and Insulation Testers • Continuity Testers and Voltage Detectors • Calibration and Tool Verification*
1215 – 1230	*Break*
1230 – 1330	***Wire & Cable Identification*** *Wire Types (Solid, Stranded, Armored, Flexible) • Color Codes and Insulation Types • Cable Sizing and Selection • Cable Handling and Storage*
1330 – 1420	***Workplace Electrical Regulations & Standards*** *National and International Standards (e.g., IEC, NEC) • Electrical Codes for Workshops • Role of Quality Assurance in Electrical Work • Environmental and Safety Compliance*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day One*

Day 2: **Monday, 17th of November 2025**

0730 – 0830	***Bench Work & Assembly Tools*** *Workbench Setup and Safety Zones • Use of Vices, Clamps and Fixtures • Manual Drilling and Fastening Techniques • Cleaning and Maintenance of Benches*
0830 – 0930	***Soldering & Desoldering Tools*** *Soldering Station Components and Functions • Solder Types and Selection • Safety in Soldering Operations • Desoldering Techniques and Rework*
0930 – 0945	*Break*
0945 – 1100	***Conduit Bending & Termination Tools*** *Manual and Mechanical Conduit Benders • Conduit Types: PVC, EMT and Flexible • Cutting and Threading Conduits • Proper Termination and Connection Methods*
1100 – 1215	***Cable Preparation & Termination*** *Cable Stripping and Preparation • Lug Crimping and Ferrule Insertion • Heat Shrink Application and Cable Glands • Cable Testing after Termination*
1215 – 1230	*Break*
1230 – 1330	***Use of Drilling, Cutting & Grinding Tools*** *Handheld Electric Drill: Safety and Usage • Use of Hole Saws and Step Drill Bits • Angle Grinders for Cutting and Cleaning • Bench Grinders for Shaping and Maintenance*
1330 – 1420	***Electrical Installation Board Practice*** *Introduction to Test Boards and Mock Setups • Mounting MCBs, Sockets and Switches • Interconnecting Wiring and Troubleshooting • Simulation of Basic Lighting and Power Circuits*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Two*

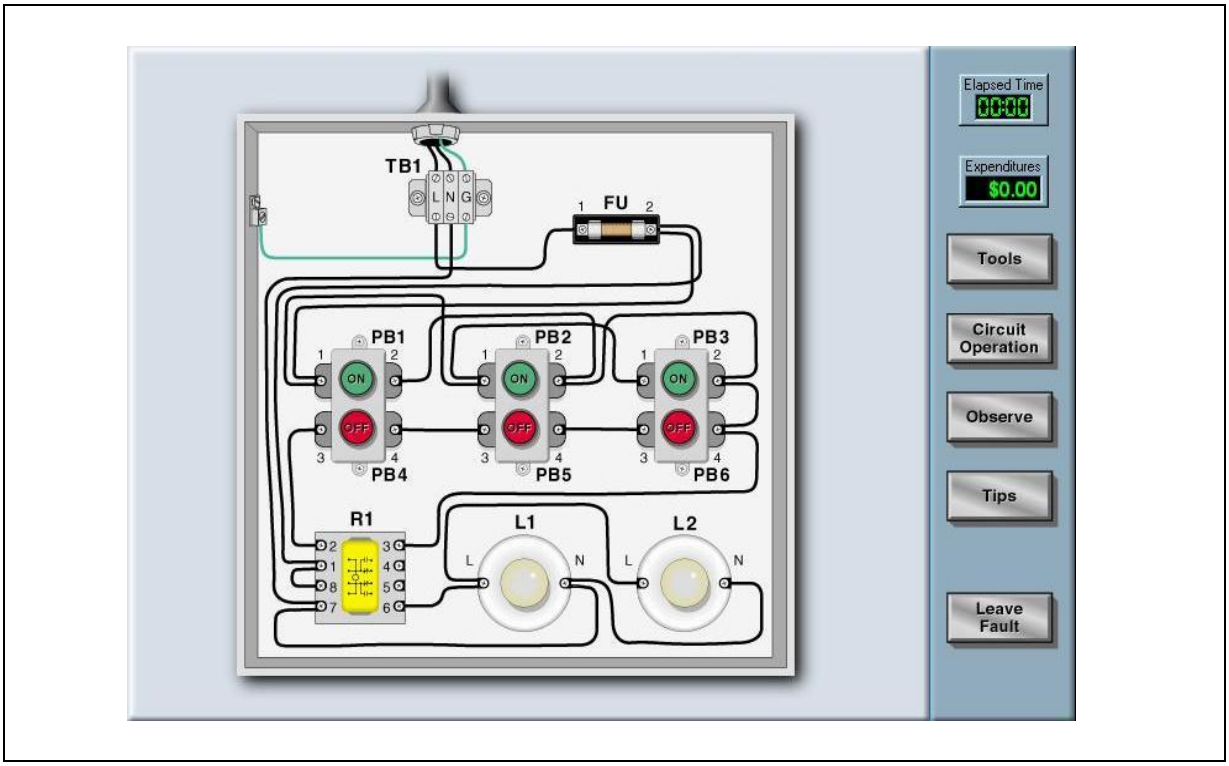
Day 3: **Tuesday, 18th of November 2025**

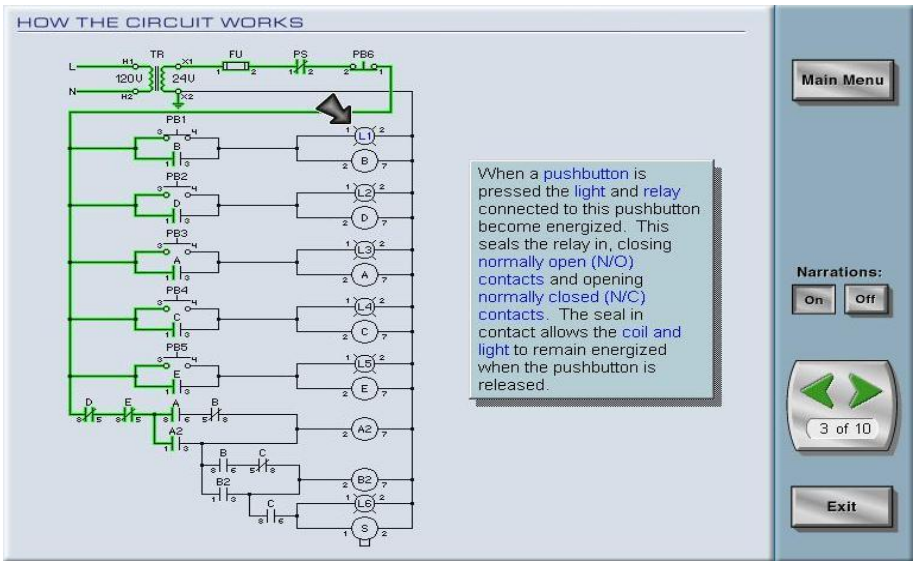
0730 – 0830	***Assembly of Domestic & Industrial Electrical Circuits*** *Light Control Circuit (One-Way and Two-Way) • Fan Regulator and Socket Outlet Wiring • Series and Parallel Lamp Connection • Basic Motor Starter Wiring Demo*
0830 – 0930	***Testing & Fault-Finding Techniques*** *Steps in Systematic Fault Diagnosis • Open Circuit and Short Circuit Identification • Using Test Instruments Effectively • Real-Life Workshop Troubleshooting Exercises*
0930 – 0945	*Break*
0945 – 1100	***Preventive Maintenance of Electrical Tools*** *Inspection Checklists and Tool Tagging • Cleaning and Lubrication • Functional Verification and Storage • Battery-Operated Tools Maintenance*
1100 – 1215	***Basics of Portable Appliance Testing (PAT)*** *Purpose and Regulatory Background • Visual Inspection of Appliances • Earth Continuity and Insulation Resistance Tests • Labelling and Recording Results*

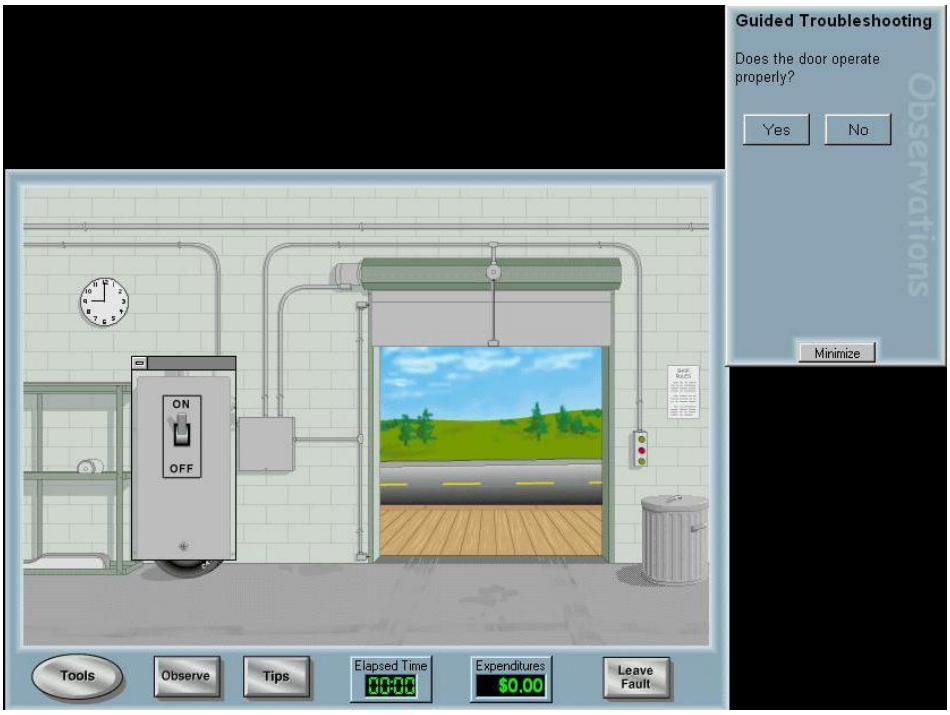
1215 – 1230	*Break*
1230 – 1345	***Power Tools & Equipment*** *Electric Screwdrivers and Power Drills • Heat Guns and Hot Air Blowers • Cable Cutters and Hydraulic Crimpers • Safety and Operational Guidelines*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about t Topics that were Covered During the Course*
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Simulator (Hands-on Practical Sessions)

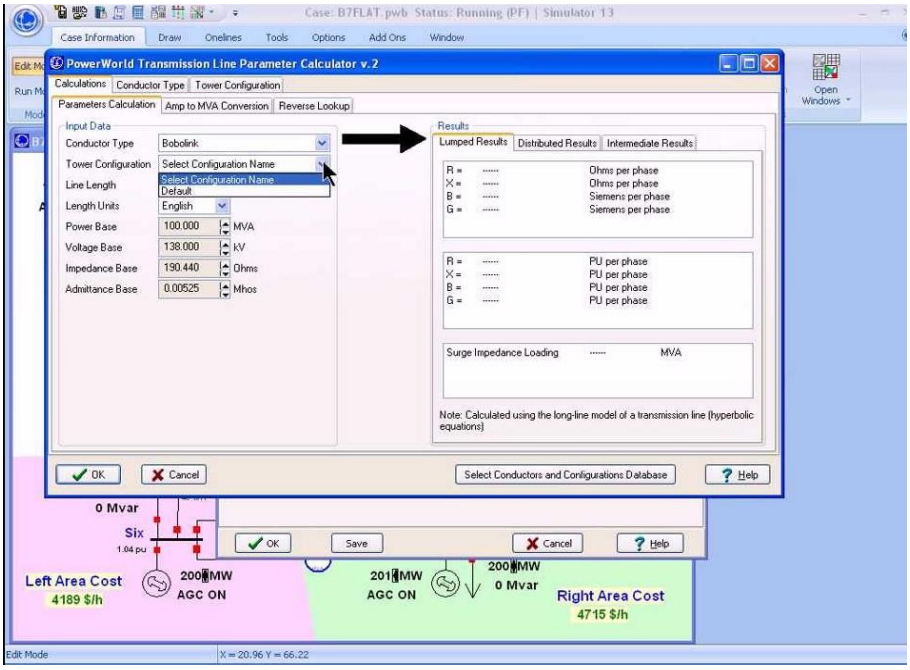
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using our state-of-the-art simulator "Simutech Troubleshooting Electrical Circuits V4.1", Power World" and "ETAP software".



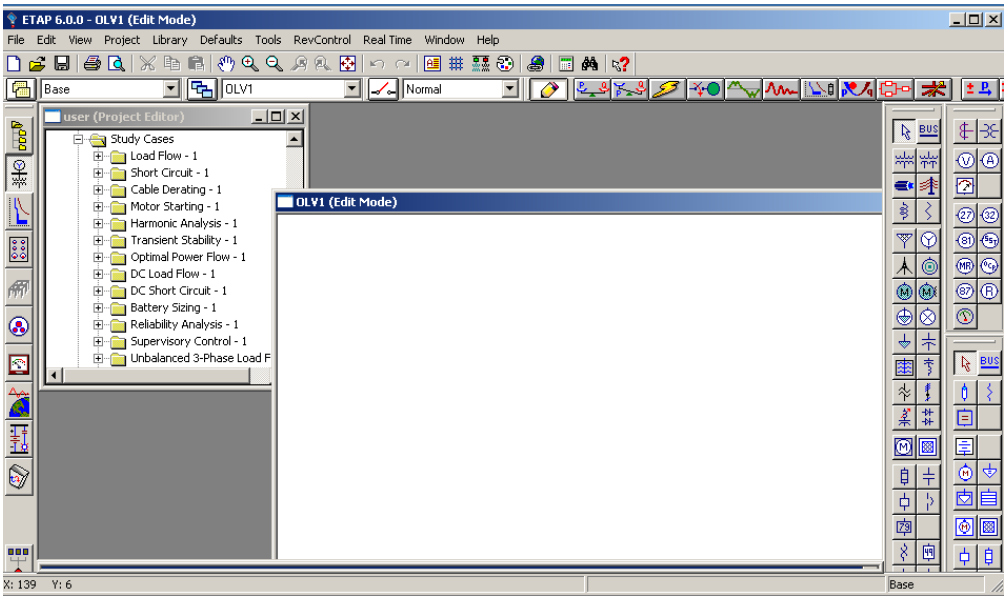




Simutech Troubleshooting Electrical Circuits V4.1



Power World Simulator



ETAP Software Simulator

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